

22<sup>ND</sup> A N N U A L  
SYMPOSIUM OF THE

---

INTERNATIONAL CANNABINOID  
RESEARCH SOCIETY

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FREIBURG

JULY 22 - 27, 2012

PRELIMINARY PROGRAMME

(SUBJECT TO CHANGES)

REGISTRATION: JULY 22<sup>ND</sup>, 2012 (16.00 – 19.00)

WELCOME RECEPTION: 18.30 – 20.00

DAY 1  
MONDAY, JULY 23<sup>RD</sup>

7.30	BREAKFAST		
8.30	WELCOME AND OPENING REMARKS		
<b>ORAL SESSION 1. NEURODEGENERATION</b> <i>CHAIRS: DAVID BAKER AND JAVIER FERNÁNDEZ-RUIZ</i>			
			<b>PAGE #</b>
8.45	Daniel K. Nomura, Tarek A. Samad and Benjamin F. Cravatt	ENDOCANNABINOID HYDROLYSIS GENERATES BRAIN PROSTAGLANDINS THAT PROMOTE NEUROINFLAMMATION	1
9.00	Scott D. Smid and Jesper L.V. Mååg	CANNABINOID LIGANDS DIRECTLY MODIFY $\beta$ -AMYLOID FIBRIL FORMATION AND ARE VARIABLY NEUROPROTECTIVE <i>IN VITRO</i>	2
9.15	Anne-Caroline Schmöle, Daniele Bano, Pierluigi Nicotera, Andreas Zimmer and Judith Alferink	THE ROLE OF THE ENDOCANNABINOID RECEPTOR CB2 IN NEURODEGENERATION	3
9.30	Ryan Graves, Gareth Pryce, Michaela Egertová, Benjamin F. Cravatt, Gavin Giovannoni, Gregory J. Michael, Maurice R. Elphick and David Baker	EFFECTS OF GENETIC DELETION AND PHARMACOLOGICAL INHIBITION OF FATTY ACID AMIDE HYDROLASE IN EXPERIMENTAL AUTOIMMUNE ENCEPHALOMYELITIS	4

9.45	Nephi Stella	TARGETING CB1 RECEPTORS AND ABHD6 TO TREAT R6/2 MICE SYMPTOMS	5
10.00	Sara Valdeolivas, Onintza Sagredo, Justo García de Yébenes, Julián Romero, Roger Pertwee, Manuel Guzmán and Javier Fernández-Ruiz	PHYTOCANNABINOID-BASED MEDICINES AS DISEASE-MODIFYING AGENTS IN HUNTINGTON'S DISEASE	6
10.15	Jacqueline L. Blankman, Jonathan Z. Long and Benjamin F. Cravatt	GENERATION AND CHARACTERIZATION OF ABHD12 <sup>-/-</sup> MICE, A MODEL OF THE NEURODEGENERATIVE DISEASE PHARC	7
10.30	<b>COFFEE BREAK</b>		
<b>ORAL SESSION 2. METABOLIC REGULATION / CARDIOVASCULAR</b> <i>CHAIRS: GEORGE KUNOS AND MATTHEW HILL</i>			
11.00	George Kunos, Yossi Tam, Resat Cinar, Jeih-San Liow, Robert Innis, Robert Chorvat and John F. McElroy	PERIPHERAL CB1R INVERSE AGONISM REDUCES DIET-INDUCED OBESITY BY REVERSING LEPTIN RESISTANCE	8
11.15	Matthew N. Hill, Nicole P. Bowles, Tiffany T. Lee Cecilia J. Hillard and Bruce S. McEwen	ACTIVATION OF HYPOTHALAMIC FATTY ACID AMIDE HYDROLASE BY LEPTIN: REGULATION OF FOOD INTAKE AND EFFECTS OF DIET-INDUCED OBESITY	9
11.30	Susan Krzysik-Walker, Isabel Gonzalez-Mariscal, Morten Scheibye-Knudsen, Fred Indig and Michel Bernier	THE CANNABINOID RECEPTOR INVERSE AGONIST AM251 ALTERS MITOCHONDRIAL PHYSIOLOGY VIA PROTEOLYTIC DEGRADATION OF ERR $\alpha$	10

11.45	A J Wheal, M D Randall and S E O'Sullivan	CANNABIDIOL IMPROVES IMPAIRED ENDOTHELIAL FUNCTION IN FEMORAL ARTERIES FROM ZUCKER DIABETIC RATS	11
12.00	William H Hind and Saoirse E O'Sullivan	THE EFFECTS OF ANANDAMIDE ON PERMEABILITY IN A CELL CULTURE MODEL OF THE BLOOD-BRAIN BARRIER	12
12.15	Sabina Adhikary, Hongbo Li, Mario Skarica, Weimin Kong, Anu Mahadevan, Doina Ganea and Ronald Tuma	MODULATION OF INFLAMMATORY CELL INVASION OF THE CNS BY A CANNABINOID-2 SELECTIVE AGONIST AFTER INJURY	13
12.30-14.00	<b>LUNCH</b>		
<b>ORAL SESSION 3. PSYCHIATRIC DISEASES / LEARNING &amp; MEMORY</b> <i>CHAIRS: BEAT LUTZ AND SARA JANE WARD</i>			
14.00	Eti Ganon-Elazar and Irit Akirav	CANNABINOIDS PREVENT THE DEVELOPMENT OF POST-TRAUMA SYMPTOMS IN A RAT MODEL OF PTSD	14
14.15	Ozge Gunduz-Cinar, Caitlin M Schaapveld, Kathryn P. MacPherson, Resat Cinar, Joyonna Gamble- George, Karen Sugden, Benjamin Williams, Grzegorz Godlewski, Teniel S Ramikie, Adam X. Gorka, Shakiru O. Alapafuja, Spyros P. Nikas, Alexandros Makriyannis, Richie Poulton, Sachin Patel, Ahmad R. Hariri, Avshalom Caspi, Terrie E. Moffitt, George Kunos and Andrew Holmes	ANANDAMIDE IN AMYGDALA- MEDIATED FEAR EXTINCTION, THREAT PROCESSING AND STRESS-REACTIVITY: A TRANSLATIONAL STUDY	15
14.30	Ilya Reznik	MEDICAL CANNABIS/MARIJUANA USE IN POST-TRAUMATIC STRESS DISORDER: A LONGITUDINAL FOLLOW-UP STUDY	16

14.45	Moriah Iverson and Cecilia J. Hillard	ANXIOGENIC-LIKE EFFECT OF THC IS LOST IN MICE LACKING BETA-ARRESTIN-2: EVIDENCE FOR SEX-DEPENDENT EFFECTS	17
15.00	Daniela Hauer, Piray Atsak, Raquel V. Fornari, Patrizia Campolongo, Gustav Schelling and Benno Roozendaal	ENDOCANNABINOID- GLUCOCORTICOID INTERACTION IN THE BASOLATERAL AMYGDALA DURING MEMORY CONSOLIDATION	18
15.15	Maria Morena, Viviana Trezza, Sergio Scaccianoce, Alessandro Pasquale, Vincenzo Cuomo, Gustav Schelling, Benno Roozendaal and Patrizia Campolongo	CANNABINOIDS MODULATION OF OBJECT RECOGNITION MEMORY IN RATS: INVOLVEMENT OF THE GLUCOCORTICOID SYSTEM	19
15.30	Xiang-Qun Xie, Rentian Feng, Peng Yang, Junpei Teramachi, Qin Tong, Lirong Wang, Zhaojun Xie, Kyaw Myint, Noriyoshi Kurihara and David G. Roodman	CANNABINOID RECEPTOR CB2. A NEW DRUG TARGET FOR MULTIPLE MYELOMA INTERVENTION	20
15.45-17.45	<b>POSTER SESSION 1</b>  COFFEE		P1
18.00	<b>PRESIDENTIAL PLENARY SPEAKER</b> "PLANNING RESEARCH FOR THE NEXT HALF A CENTURY"  <b>RAPHAEL MECHOULAM, PH.D.</b> <i>Institute for Drug Research</i> <i>Hebrew University of Jerusalem</i>		

**DAY 2**  
**TUESDAY, JULY 24<sup>TH</sup>**

7.30	<b>BREAKFAST</b>		
<b>ORAL SESSION 4. RECEPTOR SIGNALING</b> <i>CHAIRS: HEATHER BRADSHAW AND MARY ABOOD</i>			
8.30	Mark Bauer, Andrea Chicca, Stefanie Hofer-Reyes, Marco Tamborrini, David Eisen, Oliver Poetz, Gerd Pluschke and Jürg Gertsch	IDENTIFICATION OF A FAMILY OF PEPTIDE ENDOCANNABINOIDS (PEPCANS): EVIDENCE FOR ALLOSTERIC MODULATION OF CB1 RECEPTORS	21
8.45	Maria Grazia Cascio, Daniele Bolognini and Roger G. Pertwee	THE CB1 RECEPTOR ALLOSTERIC MODULATOR, ORG 27569, HAS DIFFERENT EFFECTS ON THE POTENCIES WITH WHICH CP55940, O-2050 AND SR141716A DISPLACE [3H]CP55940 OR [3H]SR141716A FROM MOUSE BRAIN CB1 RECEPTORS	22
9.00	Derek M. Shore, Dow P. Hurst, Herb Seltzman, Gemma Baillie, Ruth Ross, Jahan P. Marcu, Mary Abood and Patricia H. Reggio	IDENTIFICATION OF THE ORG27569 BINDING SITE AT THE CB1 RECEPTOR: IMPORTANCE OF K3.28 INTERACTION TO THE ORG27569 EFFECT ON BASAL SIGNALING	23
9.15	Michelle Glass, Erin Cawston, Courtney Breen, William Redmond and Mark Connor	ALLOSTERIC MODULATION OF HUMAN CB1 RECEPTORS	24
9.30	Eugen Brailoiu, G. Cristina Brailoiu, Elena Deliu, Haleli Sharir, Pingwei Zhao and Mary E. Abood	FUNCTIONAL INTRACELLULAR CANNABINOID RECEPTORS	25

9.45	Lawrence C. Blume, Caroline E. Bass, George D. Dalton, Dana E. Selley and Allyn C. Howlett	CANNABINOID RECEPTOR INTERACTING PROTEIN (CRIP1A) MODULATES CB1 RECEPTOR TRAFFICKING, ACTIVITY AND SIGNALING	26
10.00	Natasha L Grimsey, Duneeshya Gunasekara, Erin Cawston, Catherine E Goodfellow and Michelle Glass	UNUSUAL TRAFFICKING OF CANNABINOID RECEPTOR 2: AGONIST-INDUCED UPREGULATION OF SURFACE RECEPTORS	27
10.15	Heather B. Bradshaw, Siham Raboune and Jordyn M. Stuart	21 NOVEL N-ACYL AMIDES, INCLUDING N-DOCOSAHEXANOYL ETHANOLAMINE, HAVE ACTIVITY AT TRPV1-4 THE PUTATIVE IONOTROPIC CANNABINOID RECEPTORS	28
10.30	Christopher J. Fowler, Peter Hammarsten and Mariateresa Cipriano	ASSOCIATION BETWEEN TUMOUR PAKT AND CB1 RECEPTOR EXPRESSION IN PROSTATE CANCER	29
10.45	<b>COFFEE BREAK</b>		
<b>ORAL SESSION 5. GASTROINTESTINAL REGULATION</b>			
<i>CHAIRS: STEVEN KINSEY AND MARIO VAN DER STELT</i>			
11.00	Steven G. Kinsey, Erica C. Cole and Aron H. Lichtman	REMARKABLE POTENCY OF $\Delta^9$ -THC IN BLOCKING GASTRIC HEMORRHAGES CAUSED BY CYCLOOXYGENASE INHIBITION IN MICE	30
11.15	Mohammad Bashashati, Yasmin Nasser, Catherine M. Keenan, Winnie Ho, Fabiana Piscitelli, Giorgio Ortar, Ken Mackie, Martin A. Storr, Vincenzo Di Marzo and Keith A. Sharkey	THE LOCALIZATION AND FUNCTION OF DIACYLGLYCEROL LIPASE (DAGL) IN THE GASTROINTESTINAL TRACT	31
11.30	Luan Koay, Rachael Rigby and Karen Wright	CANNABIDIOL INDUCES NON- CANONICAL AUTOPHAGY	32

11.45	<p style="text-align: center;"><b>KANG TSOU MEMORIAL LECTURE</b>  <b>"DO DIFFERENTIATED NEURONS MIGRATE?"</b>  <b>MICHAEL FROTSCHER, M.D.</b>  <i>Institute for Structural Neurobiology</i>  <i>Center for Molecular Neurobiology (ZMNH)</i>  <i>Universitätsklinikum Hamburg-Eppendorf (UKE)</i>  <i>Hamburg</i></p>		
12.45-14.00	<p style="text-align: center;"><b>NIDA TRAINEE LUNCH AND LEARN</b>  <b>"CANNABINOID PHARMACEUTICS:  HISTORICAL INFLUENCES ON MILLENNIAL RESEARCH"</b>  <b>JOHN MCPARTLAND AND ALLYN HOWLETT</b></p>		
12.45-14.00	<p style="text-align: center;"><b>LUNCH</b></p>		
<p style="text-align: center;"><b>ORAL SESSION 6. PAIN</b>  <i>CHAIRS: KATARZYNA STAROWICZ AND ANDREA HOHMANN</i></p>			
14.00	<p>Katarzyna Starowicz,  Wioletta Makuch,  Michal Korostynski,  Michal Slezak,  Magdalena Zychowska,  Stefania Petrosino,  Luciano De Petrocellis,  Luigia Cristino, Barbara  Przewlocka  and Vincenzo Di Marzo</p>	<p style="text-align: center;">FULL INHIBITION OF SPINAL FATTY  ACID AMIDE HYDROLASE IN  NEUROPATHIC RATS LEADS TO TRPV1-  MEDIATED ANALGESIC EFFECTS VIA  REMODELING OF THE  ENDOCANNABINOID SYSTEM</p>	33
14.15	<p>K. Starowicz, N. Malek,  M. Mrugala, W. Makuch,  Francesca Comelli,  G. Ortar, E. Morera,  B. Costa, B. Przewlocka  and V. Di Marzo</p>	<p style="text-align: center;">OMDM198, A COMPOUND  TARGETING BOTH TRPV1 AND FATTY  ACID AMIDE HYDROLASE: A NEW  PAIN MANAGEMENT STRATEGY IN  OSTEOARTHRITIS?</p>	34



14.30	James P Pearson, Sylvie Bernier, Carlotta Jackson, James D Wakefield, Kristie A Sykes, Elaine Liong, Galen Carey, Robert W Busby, Mark G Currie, Aron H Lichtman, G Todd Milne and Albert T Profy	ORAL TREATMENT WITH THE SELECTIVE FAAH INHIBITOR MM-433593 RELIEVES THERMAL HYPERALGESIA INDUCED BY <i>E. COLI</i> LIPOPOLYSACCHARIDE IN C57BLACK6/J MICE VIA CANNABINOID CB1 RECEPTOR	35
14.45	Andrew J. Kwilasz, Aron Lichtman and Steve Negus	THE FAAH INHIBITORS PF3845 AND URB597 PRODUCE DISTINCT EFFECTS ON ACUTE PAIN-STIMULATED AND PAIN-DEPRESSED BEHAVIOR IN RATS	36
15.00	Mauro Dionisi, Cataldo Martucci, Glauco Tarozzo, Rosalia Bertorelli, Angelo Reggiani and Daniele Piomelli	A NOVEL NAAA INHIBITOR REVERSED UVB-INDUCED INFLAMMATORY RESPONSE BOTH <i>IN VITRO</i> AND <i>IN VIVO</i>	37
15.15	Bogna M. Ignatowska-Jankowska, Sudeshna Gosh, Micah J. Niphakis, Scott O'Neal, D. Matthew Walentiny, Jenny L. Wiley, Benjamin F. Cravatt, and Aron H. Lichtman	THE SELECTIVE MONOACYLGLYCEROL LIPASE INHIBITOR KML29 PRODUCES ANTINOCICEPTION IN THE ABSENCE OF CANNABIMIMETIC EFFECTS	38
15.30	Herbert H. Seltzman, Craig Shiner, Erin Hirt, Anne F. Gilliam, Rangan Maitra, Rodney W. Snyder, Yatendra Mulpuri and Igor Spigelman	PERIPHERALLY RESTRICTED CB1 AGONISTS FOR TREATMENT OF NEUROPATHIC PAIN	39
15.45	James Burston, Devi Sagar, Stephen Woodhams, Gareth Hathway, Emma King, Andrew Bennett, David Kendall and Victoria Chapman	EVIDENCE THAT CANNABINOID CB2 RECEPTORS PLAY A NOVEL ROLE IN THE MODULATION OF SPINAL HYPERSENSITIVITY AND PAIN BEHAVIOUR IN THE RAT MIA MODEL OF OSTEOARTHRITIS	40

16.00-18.00	<b>POSTER SESSION 2</b>  <b>COFFEE</b>		P2
<b>ORAL SESSION 7. PHYTOCANNABINOIDS</b> <i>CHAIRS: MAHMOUD ELSOHLY AND BARBARA COSTA</i>			
18.00	Jonathan E. Page, Harm van Bakel, Jake Stout and Timothy R. Hughes	GENOMIC ANALYSIS OF PHYTOCANNABINOID BIOSYNTHESIS IN <i>CANNABIS SATIVA L.</i>	41
18.15	Michelle Sexton, Eiron Cudaback, Rehab A. Abdullah and Nephi Stella	CANNABIS USE AS A COMPLEMENTARY ALTERNATIVE MEDICINE IN MULTIPLE SCLEROSIS: EFFECTS ON SOME IMMUNE PARAMETERS	42
18.30	Daniele Bolognini, Erin M. Rock, Maria Grazia Cascio, Linda Parker and Roger G. Pertwee	CANNABIDIOLIC ACID BEHAVES AS A HIGHLY POTENT ENHANCER OF 5-HT1A RECEPTOR ACTIVATION BOTH <i>IN VITRO</i> AND <i>IN VIVO</i>	43
18.45	Francesca Comelli, Giulia Filippi, Elena Papaleo, Luca De Gioia, Roger Pertwee and Barbara Costa	EVIDENCE THAT THE PHYTOCANNABINOID CANNABIGEROL CAN INDUCE ANTINOCICEPTION BY ACTIVATING $\alpha$ 2-ADRENORECEPTORS: A COMPUTATIONAL AND A PHARMACOLOGICAL STUDY	44
19.00	István Ujváry, Alessia Ligresti, Rosaria Villano, Marco Allarà and Vincenzo Di Marzo	YANGONIN, A KAVALACTONE FROM <i>PIPER METHYSTICUM</i> , IS A NOVEL CB1 RECEPTOR LIGAND	45

**DAY 3**  
**WEDNESDAY, JULY 25<sup>TH</sup>**

7.30	<b>BREAKFAST</b>		
<b>ORAL SESSION 8. DRUG ADDICTION</b> <i>CHAIRS: TIZIANA RUBINO AND IAIN MCGREGOR</i>			
8.30	Ryan Vandrey, Maxine L. Stitzer, Miriam Z. Mintzer, Marilyn A. Huestis, Jeannie A. Murray and Dayong Lee	THE DOSE EFFECTS OF DRONABINOL (ORAL THC) IN HEAVY CANNABIS USERS	46
8.45	Margaret Haney, Gillinder Bedi, Ziva D. Cooper, Andrew Glass and Richard W. Foltin	PREDICTORS OF MARIJUANA RELAPSE: ROBUST IMPACT OF CIGARETTE SMOKING	47
9.00	Matthew W. Buczynski, Ilham Y. Polis and Loren H. Parsons	THE VOLITIONAL NATURE OF NICOTINE EXPOSURE DIFFERENTIALLY ALTERS ANANDAMIDE AND OLEOYLETHANOLAMIDE LEVELS IN THE VENTRAL TEGMENTAL AREA	48
9.15	Iain S. McGregor, Kirily Keats, Alex Wong, Kieron Rooney and Jonathon C. Arnold	$\Delta^9$ -THC "REINTOXICATION" EFFECTS IN RATS AND HUMANS	49
9.30	Brian F. Thomas, Poonam G. Pande, Richard C. Daw, Kenneth H. Davis, Jenny L. Wiley and Megan E. Grabenauer	ANALYSIS OF SMOKE COMPOSITION FROM PRODUCTS CONTAINING SYNTHETIC CANNABINOIDS	50
9.45	Jenny L. Wiley, Timothy W. Lefever and Julie A. Marusich	PHARMACOLOGICAL PROFILE OF ABUSED INDOLE-DERIVED CANNABINOIDS CONTAINED IN 'HERBAL INCENSE' IN MICE	51

10.00	Miriam Schneider, Chris M. Friemel and Andreas Zimmer	HEDONIC REWARD PROCESSING IS ATTENUATED IN CB1 RECEPTOR KNOCKOUT MICE	52
10.15	McMahon LR, Hrubá L, Kinsey SG, O'Neal ST, Cravatt BF and Lichtman AH	COMBINED EFFECTS OF A MONOACYLGLYCEROL LIPASE AND FATTY ACID AMIDE HYDROLASE INHIBITOR IN MICE DISCRIMINATING $\Delta^9$ -TETRAHYDROCANNABINOL	53
10.30	Zheng-Xiong Xi, Xiao- Qing Peng, Xia Li, Hong- Ju Yang, Jie Li and Eliot L. Gardner	CANNABINOID CB2 RECEPTORS MODULATE COCAINE SELF-ADMINISTRATION IN RATS	54
10.45-12:45	<b>POSTER SESSION 3</b>  <b>COFFEE</b>		P3
12.45	<b>LUNCH</b>		
14.00	<b>EXCURSION TO THE BLACK FOREST</b>		

NOTES:

**DAY 4**  
**THURSDAY, JULY 26<sup>TH</sup>**

7.30	<b>BREAKFAST</b>	
8.20	<p><b>NIDA SYMPOSIUM</b></p> <p><b>ROLE OF CANNABINOID SYSTEM IN NICOTINE ADDICTION</b></p> <p>ORGANIZERS: VISHNUDUTT PUROHIT AND RAO RAPAKA DISCUSSANTS: BEN CRAVATT AND ARON LICHTMAN</p>	
8.30	<p>Sherry Niessen <i>Scripps Research Institute La Jolla, CA USA</i></p>	<p><b>PROTEOMICS OF NICOTINE-DEPENDENT BRAIN</b></p>
8.55	<p>Daniele Piomelli <i>University of California Irvine, CA USA</i></p>	<p><b>FAAH INHIBITORS AS POTENTIAL LEADS FOR SMOKING CESSATION</b></p>
9.20	<p>Aron Lichtman <i>Virginia Commonwealth University Richmond, VA USA</i></p>	<p><b>MODULATING NICOTINE REWARD AND DEPENDENCE THROUGH THE ENDOGENOUS CANNABINOID SYSTEM</b></p>
9.45	<p>Rafael Maldonado <i>Universitat Pompeu Fabra Barcelona, Spain</i></p>	<p><b>TARGETING THE CB1 RECEPTOR TO TREAT NICOTINE ADDICTION</b></p>
10.10	<b>COMMENTARY AND DISCUSSION</b>	
10.35	<b>COFFEE BREAK</b>	
11.00	<p><b>YOUNG INVESTIGATOR AWARDEE SPEAKER</b></p> <p><b>"INTERPLAY OF ENDOCANNABINOIDS AND PLANT DERIVED CANNABINOIDS WITH INFLAMMATION, OXIDATIVE STRESS AND CELL DEATH: IMPLICATIONS FOR TISSUE INJURY AND PROTECTION"</b></p> <p><b>PAL PACHER, M.D., PH.D.</b> <i>Laboratory of Physiological Studies National Institute on Alcohol Abuse and Alcoholism, Bethesda, MD USA</i></p>	

12.00	<b>LUNCH</b>		
<b>ORAL SESSION 9. ENDOCANNABINOID SYNTHESIS / CATABOLISM</b>			
<i>CHAIRS: DANIEL NOMURA AND NATSUO UEDA</i>			
13.15	Toru Uyama, Natsuki Ikematsu, Manami Inoue, Naoki Shinohara, Xing-Hua Jin, Kazuhito Tsuboi, Takeharu Tonai, Akira Tokumura and Natsuo Ueda	GENERATION OF N-ACYLPHOSPHATIDYLETHANOLAMINE BY MEMBERS OF PHOSPHOLIPASE A/ACYLTRANSFERASE (PLA/AT) FAMILY	55
13.30	Bela Szabo and Mario Lederer	CALCIUM RELEASE FROM THE ENDOPLASMIC RETICULUM CONTRIBUTES TO TRIGGERING ENDOCANNABINOID PRODUCTION IN CEREBELLAR PURKINJE CELLS	56
13.45	Nolan D. Hartley, Daniel J. Hermanson, Lawrence J. Marnett and Sachin Patel	SUBSTRATE SELECTIVE INHIBITION OF COX-2 AS A NOVEL STRATEGY FOR <i>IN VIVO</i> ENDOCANNABINOID AUGMENTATION	57
14.00	Melissa V. Turman, Daniel Hermanson, Jeffery J. Prusakiewicz, Philip J. Kingsley, Andrews S. Felts, Kelsey C. Duggan, Sachin Patel and Lawrence J. Marnett	ACETAMINOPHEN AND ITS METABOLITES, 4-AMINOPHENOL AND AM-404, ARE SUBSTRATE-SELECTIVE INHIBITORS OF ENDOCANNABINOID OXYGENATION BY CYCLOOXYGENASE-2	58
14.15	KwanNok Leung, Stephanie Vivieca, Jing Sun, Sherrye T. Glaser, Dale G. Deutsch and Martin Kaczocha	FLAT IS NOT AN INTRACELLULAR ANANDAMIDE TRANSPORTER	59
14.30	Attila Oláh, Balázs I. Tóth, Attila G. Szöllösi, Lídia Ambrus, Christos C. Zouboulis and Tamás Bíró	FATTY ACID AMIDE HYDROLASE INHIBITORS EXERT COMPLEX ANTI-ACNE ACTIONS IN HUMAN SEBOCYTES	60

14.45	Julian Romero, Carolyn Tanner, Richard Lennertz, Amanda Smith, Cheryl L. Stucky and Cecilia J. Hillard	LONG-TERM CHANGES IN FATTY ACID AMIDE HYDROLASE KNOCKOUT MICE: INVOLVEMENT OF THE TRANSIENT RECEPTOR POTENTIAL VANILLOID 1 RECEPTOR	61
15.00	Lalita D. Shrestha and Cecilia J. Hillard	REGULATION OF MONOACYLGLYCEROL LIPASE FUNCTION BY PHOSPHORYLATION	62
15.15	<b>COFFEE BREAK</b>		
15.45	William T. Berger, Brian P. Ralph, Jing Sun, Martin Kaczocha, Trent E. Balius, Robert C. Rizzo, Iwao Ojima and Dale G. Deutsch	VIRTUAL SCREENING FOR INHIBITORS OF THE ANANDAMIDE TRANSPORTER (FATTY ACID BINDING PROTEINS)	63
16.00	Carmen Vázquez, Marta Moreno, Lourdes Ruiz-Valdepeñas, Elena Tomás, Samuel Ruiz de Martín, Rosa María Tolón and Julián Romero	FATTY ACID AMIDE HYDROLASE DELETION POTENTIATES <i>IN VIVO</i> GLIAL ACTIVITY IN RESPONSE TO ACUTE BRAIN INJURY	64
<p><b>ORAL SESSION 10. IN MEMORIAM OF ESTER FRIDE: ENDOCANNABINOIDS AND DEVELOPMENT</b></p> <p><i>CHAIRS: SHARON ANAVI-GOFFER AND MAURO MACCARRONE</i></p>			
16.15	<b>OPENING REMARKS</b>		
16.25	Mauro Maccarrone, Mariangela Pucci, Sara Di Siena, Daniele Di Giacomo, Valentina Pirazzi, Raffaele Geremia and Paola Grimaldi	REGULATION OF THE FAAH GENE BY ESTROGEN ENGAGES HISTONE DEMETHYLASE LSD1	65

16.40	Tiziana Rubino, Pamela Prini, Erica Zamberletti, Simona Speziali and Daniela Parolaro	THE ENDOCANNABINOID SYSTEM PLAYS A ROLE IN NEURONAL REFINEMENT OCCURRING IN THE ADOLESCENT PREFRONTAL CORTEX	66
16.55	Chris M. Friemel, Rainer Spanagel and Miriam Schneider	ACUTE AND CHRONIC CANNABINOID TREATMENT DIFFERENTLY AFFECT ETHANOL INTAKE IN PUBERTAL AND ADULT RATS	67
17.10	Sangeetha Gajendra, Madeleine Oudin, Patrick Doherty and Giovanna Lalli	A CANNABINOID-RALA SIGNALLING PATHWAY CONTROLLING NEURAL PROGENITOR MIGRATION	68
17.25	Sharon Anavi-Goffer, Merav Hajby, Dorian Solomon, Alex Naftaly, Orit Karminsky, Raphael Mechoulam, Iain R. Greig, Ruth A. Ross, Peter McCaffery and Kirsty Shearer	ALTERATIONS IN CANNABINOID SIGNALLING CONTRIBUTE TO ADHD-LIKE SYMPTOMS AT ADULTHOOD	69
17.40-18.40	ICRS BUSINESS MEETING		
19.00-23.00	ICRS BANQUET		

DEPARTURE: FRIDAY, JULY 27<sup>TH</sup>



**POSTER SESSION 1: TOPICS A - D**  
**DAY 1, MONDAY, JULY 23<sup>RD</sup>: 15:45 – 17:45**

**TOPIC A. NEURODEGENERATION**

Robert B Laprairie, Melanie E M Kelly and Eileen M Denovan-Wright	TYPE 1 CANNABINOID RECEPTOR (CB1)-MEDIATED INDUCTION OF CB1 EXPRESSION IN CELLULAR MODELS OF HUNTINGTON'S DISEASE	P1-1
Hamad Al-Harbi, David A Kendall and Stephen PH Alexander	EFFECTS OF CANNABIDIOL AND HU210 ON VIABILITY OF SH-SY5Y HUMAN NEUROBLASTOMA CELLS	P1-2
Pazos MR, Mohamed N, Martínez-Pinilla E, Ceprián M, Lafuente H, Santos M, Romero J, Alvarez FJ, Franco R, Hillard C and Martínez-Orgado J.	INVOLVEMENT OF CB2 AND 5HT1A RECEPTORS IN CANNABIDIOL-INDUCED NEUROPROTECTION AFTER HYPOXIA-ISCHEMIA IN NEWBORN PIGS	P1-3
Ceprián M, Pazos MR, Mohammed N, Santos M, Mechoulam R and Martínez-Orgado J.	THE CB2 AGONIST HU308 REDUCES BRAIN HYPOXIC-ISCHEMIC DAMAGE IN NEWBORN RATS	P1-4
Pazos MR, Mohammed N, Ceprián M, Santos M and Martínez-Orgado J.	NEUROPROLIFERATIVE EFFECT OF CANNABIDIOL ADMINISTRATION TO NEWBORN RATS AFTER HYPOXIA-ISCHEMIA	P1-5
Sonja Kallendrusch, Faramarz Dehghani and Marco Koch	THE GPR55 LIGAND L- $\alpha$ -LYSOPHOSPHATIDYLINOSITOL (LPI) EXERTS NEUROPROTECTIVE EFFECTS AFTER EXCITOTOXIC LESION IN VITRO	P1-6
Carmen Vázquez, Marta Moreno, Lourdes Ruiz- Valdepeñas, Samuel Ruiz de Martín, Elena Tomás, Rosa María Tolón and Julián Romero	CANNABIDIOL POTENTIATES IN VIVO MICROGLIAL ACTIVITY IN RESPONSE TO ACUTE BRAIN INJURY	P1-7
Balopal S. Basavarajappa, Madhu Shivakumar, Delphine Psychoyos, Shan Xie and Shivakumar Subbanna	AEA/CB1R SIGNALING CONTRIBUTES TO FETAL ALCOHOL SPECTRUM DISORDER	P1-8
Iryna A. Khasabova, Matt Tracy, Natalya Burlakova, Sergey G.Khasabov, Catherine Harding- Rose, Donald A. Simone and Virginia S. Seybold	FACILITATION OF ANANDAMIDE SIGNALING REDUCES NEUROTOXICITY PRODUCED BY CISPLATIN	P1-9
Marie-Louise Zeissler, C. Oliver Hanemann, John P. Zajicek and Camille B. Carroll	THE FAAH INHIBITOR URB597 IS PROTECTIVE AGAINST MPP+ IN A CELL CULTURE MODEL OF PARKINSON'S DISEASE	P1-10

Alex Straiker, Meggie D Beazley, Sherry Shu-Jung Hu, Suresh Viswanathan, Heather Bradshaw and Melanie EM Kelly	EVIDENCE THAT A FUNCTIONAL GPR18-BASED SIGNALING SYSTEM IN THE ANTERIOR MURINE EYE MODULATES INTRAOCULAR PRESSURE	P1-11
John Zajicek	WHAT DO RESULTS FROM THE CANNABINOID USE IN PROGRESSIVE INFLAMMATORY BRAIN DISEASE (CUPID) TRIAL TELL US ABOUT THE POTENTIAL OF CANNABINOIDS FOR NEUROPROTECTION?	P1-12
Mauro Maccarrone, Valerio Chiurchiù, Maria Teresa Cencioni, Elisa Bisicchia, Marco De Bardi, Claudio Gasperini, Diego Centonze and Luca Battistini	ANANDAMIDE HAS DISTINCT EFFECTS ON HUMAN MYELOID AND PLASMACYTOID DENDRITIC CELLS IN MULTIPLE SCLEROSIS	P1-13
<b>TOPIC B. METABOLIC REGULATION / CARDIOVASCULAR</b>		
Paul A.K.E. Gyimah and W. -S. Vanessa Ho	EFFECTS OF HIGH GLUCOSE ON THE VASCULAR ACTION OF ANANDAMIDE IN YOUNGER AND OLDER RATS	P1-14
Lucie Geurts, Nathalie M. Delzenne and Patrice D. Cani	CHRONIC ENDOCANNABINOID SYSTEM ACTIVATION AND METABOLIC ENDOTOXEMIA DIFFERENTIALLY AFFECT THE ONSET OF GLUCOSE INTOLERANCE AND INFLAMMATION IN HIGH-FAT DIET-INDUCED METABOLIC ALTERATIONS	P1-15
Emmelie Björklund, Anders E. Blomqvist, Daniele Piomelli, Giovanni Bottegoni and Christopher J. Fowler	FUNCTIONAL MEASUREMENT OF FLAT-SENSITIVE ANANDAMIDE UPTAKE INTO THREE RAT CELL LINES	P1-16
Li-Sheng Jiang, Xiao-Jin Huang, Ying-Min Chen and Ben He	ROLE AND MECHANISM OF CANNABINOID CB2 RECEPTOR ACTIVATION IN REGULATING THE EFFEROCYTOSIS FUNCTION OF MACROPHAGE	P1-17
Tiziana Bisogno, Anu Mahadevan, Roberto Coccorello, Jae Won Chang, Marco Allarà, Yugang Chen, Aron Lichtman, Benjamin F. Cravatt, Anna Moles and Vincenzo Di Marzo	DESIGN, SYNTHESIS AND PHARMACOLOGICAL ACTIVITY OF O-7460, A NOVEL FLUOROPHOSPHONATE INHIBITOR OF THE BIOSYNTHESIS OF 2-ARACHIDONOYL-GLYCEROL	P1-18
Edgar Soria-Gómez, Luigi Bellocchio, Mounir Bendahmane, Leire Reguero, Astrid Cannich, Elodie Richard, Pedro Grandes, Hiram Gurden and Giovanni Marsicano	CANNABINOID TYPE-1 (CB1)-DEPENDENT REGULATION OF FOOD INTAKE IN THE OLFATORY BULB	P1-19

A J Wheal, S E O'Sullivan and M D Randall	ACUTE VASCULAR EFFECTS OF ENDOCANNABINOIDS IN THORACIC AORTAE FROM ZUCKER DIABETIC RATS	P1-20
Barbara Malinowska, Emilia Grzęda and Eberhard Schlicker	INVOLVEMENT OF THE HYPOTHALAMIC PARAVENTRICULAR NUCLEUS IN THE PRESSOR EFFECT OF THE CANNABINOID RECEPTOR AGONIST CP55940	P1-21
Cristoforo Silvestri, Andrea Martella, Fabiana Piscitelli, Neil Poloso, David Woodward and Vincenzo Di Marzo	THE PROSTAMIDE ANALOGUE BIMATOPROST INHIBITS ADIPOGENESIS	P1-22
William H Hind and Saoirse E O'Sullivan	CANNABIDIOL PROTECTS THE BLOOD-BRAIN BARRIER AGAINST INCREASED PERMEABILITY FOLLOWING OXYGEN-GLUCOSE DEPRIVATION	P1-23
C P Stanley and Saoirse E O'Sullivan	2-AG RESPONSES ARE BLUNTED IN PATIENTS WITH CARDIOVASCULAR DISEASE AND CARDIOVASCULAR DISEASE RISK FACTORS	P1-24
C P Stanley and Saoirse E O'Sullivan	CANNABIDIOL INDUCED VASORELAXATION OF HUMAN MESENTERIC ARTERIES IS MEDIATED BY THE ENDOTHELIUM, CB1 AND TRPV1	P1-25
Lysanne Campeau, Claudius Füllhase, Allyn Howlett and Karl-Erik Andersson	CYSTOMETRIC EFFECTS OF SPINAL CANNABINOID RECEPTOR ACTIVATION IN NORMAL RATS	P1-26
Lysanne Campeau, Claudius Füllhase, Allyn Howlett and Karl-Erik Andersson	ROLE OF TRPV1 RECEPTORS IN THE SPINAL EFFECTS OF N-ACYL-ETHANOLAMINE ON THE MICTURITION IN THE NORMAL RAT	P1-27
Raj Kamal Srivastava and Beat Lutz	DYSREGULATION OF HYPOTHALAMIC-PITUITARY- ADRENAL AXIS IN MICE LACKING CB1 RECEPTOR IN ADRENERGIC AND NORADRENERGIC NEURONS	P1-28
Paolo Lazari and Andrea Mastinu	NOVEL SELECTIVE CB1 ANTAGONIST AGENT WITH ANTI-OBESITY ACTIVITY	P1-29

## TOPIC C. PSYCHIATRIC DISEASES / LEARNING & MEMORY

Sabrina F. Lisboa, Felipe V. Gomes and Francisco S. Guimarães	CANNABIDIOL ATTENUATES ISOLATION- INDUCED AGGRESSION IN MICE BY ACTIVATION OF 5-HT1A RECEPTORS	P1-30
Fabricio A. Moreira, Luciano R. Vilela, Daniel C. Medeiros, Gustavo H. Rezende, Antonio C. Oliveira and Marcio F. Moraes	EFFECTS OF CANNABINOIDS AND ENDOCANNABINOID- HYDROLYSIS INHIBITION ON PENTYLENETETRAZOLE- INDUCED SEIZURES AND ELECTROENCEPHALOGRAPHIC ACTIVITY	P1-31
Martin A. Sticht and Linda A. Parker	THE ROLE OF INTRA-VISCERAL INSULAR CORTEX 2AG IN CONDITIONED NAUSEA-LIKE BEHAVIOR IN RATS	P1-32
Anja A. Goepfrich , Matthias Klugmann, Thomas Enkel and Miriam Schneider	ADULT RATS OVEREXPRESSING THE CB1 RECEPTOR IN THE MPFC DISPLAY ALTERED EMOTIONAL BEHAVIOR AND IMPAIRED EXTINCTION OF FEAR MEMORY	P1-33
Ryan J. McLaughlin, Matthew N. Hill, Tiffany Lee, Jay Schulkin, Cecilia J. Hillard and Bruce S. McEwen	CRH MEDIATES THE EFFECTS OF GLUCOCORTICOIDS ON ENDOCANNABINOID SIGNALING IN THE AMYGDALA	P1-34
Daniela Hauer, Hannah Gola, Patrizia Campolongo, Iris-Tatjana Kolassa and Gustav Schelling	PLASMA LEVELS OF ENDOCANNABINOIDS AND RELATED PRIMARY FATTY ACID AMIDES ARE INCREASED IN PATIENTS WITH POST-TRAUMATIC STRESS DISORDER	P1-35
Tiffany T.-Y. Lee, Matthew N. Hill, Sarah B. Filipski and Bruce S. McEwen	MORPHOLOGICAL AND BEHAVIOURAL EVIDENCE FOR IMPAIRED PREFRONTAL CORTICAL FUNCTION IN FEMALE CB1 RECEPTOR DEFICIENT MICE	P1-36
Vincenzo Micale, Fabricio A. Pamplona, Alexandra Sulcova, Filippo Drago and Carsten T. Wotjak	THE MODULATION OF THE ENDOCANNABINOID SIGNALING MEDIATES THE EXTINCTION OF AVOIDANCE BEHAVIOR BY CONTROLLING SAFETY LEARNING	P1-37
Irena Smaga, Aneta Piwowarczyk, Beata Bystrowska and Małgorzata Filip	CHANGES IN THE LEVEL OF ENDOCANNABINOIDS AND ENDOCANNABINOID-LIKE MOLECULES AFTER ACUTE AND REPEATED ADMINISTRATION OF IMIPRAMINE AND N-ACETYLCYSTEINE IN DIFFERENT RAT BRAIN STRUCTURES	P1-38
Hila Abush and Irit Akirav	CANNABINOIDS AMELIORATE IMPAIRMENTS INDUCED BY CHRONIC STRESS TO SYNAPTIC PLASTICITY AND SHORT-TERM MEMORY	P1-39

Amir Segev and Irit Akirav	CANNABINOID AND GLUCOCORTICOID RECEPTORS IN THE AMYGDALA MODULATE THE STRESS-INDUCED IMPAIRMENT OF LTP IN THE HIPPOCAMPAL-ACCUMBENS PATHWAY	P1-40
Teniel S. Ramikie and Sachin Patel	ENDOCANNABINOID-MEDIATED SYNAPTIC DEPRESSION IN THE CENTRAL AMYGDALA: CHOLINERGIC-CANNABINOID INTERACTIONS	P1-41
Felicha T. Candelaria-Cook and Derek A. Hamilton	CHRONIC WIN 55,212-2 EXPOSURE AND DENTATE DENDRITIC MORPHOLOGY IN ADULT RATS	P1-42
Robert E. Hampson, Cheryl Ann Sexton, John Sesay, Anushka Goonawardena and Sam A. Deadwyler	CANNABINOIDS ALTER REVERSAL OF BEHAVIORAL CONTINGENCY BY SUPPRESSING MEMORY-RELATED ENCODING	P1-43
Yosef Sarne, Miriam Fishbein, Sahar Gov, Ora Keren and Mikhal Gafni	EXTREMELY LOW DOSES OF TETRAHYDROCANNABINOL PROTECT FROM COGNITIVE DEFICITS AND INDUCE LONG-LASTING BIOCHEMICAL CHANGES IN THE MOUSE BRAIN	P1-44
Roberto Colangeli, Ines Santolini, Silvana Gaetani, Ferdinando Nicoletti, Richard Ngomba and Vincenzo Cuomo	ALTERATIONS OF CB1 mRNA EXPRESSION IN STARGAZER MUTANT MICE AND IN PENTYLENETETRAZOLE-INDUCED SPIKE AND WAVE DISCHARGES IN RATS	P1-45
Alex Naftaly, Shimon Rabichev, Orit Karminsky, Jürg Gertsch, Ken Mackie Tibor Harkany, Ruth A. Ross, Ester Fride and Sharon Anavi-Goffer	REDUCED EXPLORATION BEHAVIOUR BY NMDA ANTAGONIST IS REVERSED BY HU-308	P1-46
Fabricio A. Moreira, Luciano R. Vilela, Daniel C. Medeiros, Gustavo H. Rezende, Antonio C. Oliveira and Marcio F. Moraes	EFFECTS OF CANNABINOIDS AND ENDOCANNABINOID-HYDROLYSIS INHIBITION ON PENTYLENETETRAZOLE-INDUCED SEIZURES AND ELECTROENCEPHALOGRAPHIC ACTIVITY	P1-47
Floor Remmers, Sabine Rühle, Hector Romo-Parra, Federico Massa, Melanie Wickert, Nadine Kaiser, Giovanni Marsicano, Hans-Christian Pape and Beat Lutz	ENDOCANNABINOID SIGNALLING AND FEAR EXTINCTION IN MOUSE LINES FOR GLUTAMATERGIC AND GABAERGIC-SPECIFIC RESCUE FROM CB1 RECEPTOR DEFICIENCY	P1-48
Vanessa Enk, Martin Häring, Floor Remmers, Sabine Rühle and Beat Lutz	EXPLORATORY BEHAVIOR AND RESPONSE TO THC IN MOUSE LINES FOR GLUTAMATERGIC AND GABAERGIC-SPECIFIC RESCUE FROM CB1 RECEPTOR DEFICIENCY	P1-49

## TOPIC D. CANNABIS

Donald P. Land and Kymron B. deCesare	CANNABIS IN (NORTHERN) CALIFORNIA, 2011-2012: STATISTICS AND TRENDS FROM THOUSANDS OF INDIVIDUAL SAMPLES TESTED FOR 15 CANNABINOIDS AND 8 TERPENOIDS	P1-50
Adam Ogden, Andrew Higham and Karen Wright	IMPORTANCE OF REFERENCE GENES IN VALIDATING THE EFFECTS OF CANNABIDIOL ON FIBROTIC PROCESSES	P1-51
Zlatko Mehmedic, Mohamed M. Radwan, Suman Chandra, Mudasir Tantry, Afeef S. Husni, Stephen Cutler, Ikhlas A. Khan and Mahmoud A. Elsohly	VOLATILE OIL FROM HIGH POTENCY <i>CANNABIS SATIVA</i> WITH <i>IN VITRO</i> BINDING AFFINITY FOR HUMAN CANNABINOID RECEPTORS	P1-52
Patrik Roser, Silke Lissek, Martin Tegenthoff, Volkmar Nicolas, Georg Juckel and Martin Brüne	ALTERATIONS OF THEORY OF MIND NETWORK ACTIVATION IN CHRONIC CANNABIS USERS	P1-53
Kristen Courtney	CANNABIS USE IN PREGNANCY AND BREASTFEEDING	P1-54

## POSTER SESSION 2: TOPICS E - G DAY 2, TUESDAY, JULY 24<sup>TH</sup>: 16:00 – 18:00

### TOPIC E. RECEPTOR SIGNALING

M. Genedy, N. Hoenig, M. Youseffi and M.C.T. Denyer	EFFECT OF CANNABINOIDS (WIN55,212-2) IN ACCELERATION OF WOUND HEALING IN BONE CELL MONOLAYER	P2-1
M. Genedy, M. Youseffi and M.C.T. Denyer	EFFECT OF CB2 SELECTIVE AGONIST ON WOUNDED BONE CELL MONOLAYERS	P2-2
A. Abdeldayem, M. Yousseffi and M.C.T. Denyer	THE EFFECT OF DIFFERENT CONCENTRATIONS OF CANNABINOID (WIN 55,212-2) ON WOUND HEALING OF CHONDROCYTE MONOLAYER	P2-3

A. Abdeldayem, M. Yousseffi and M.C.T. Denyer	THE EFFECT OF DIFFERENT CONCENTRATIONS OF THE SYNTHETIC CANNABINOIDS WIN 55,212-2, URB602 AND HU-308 ON WOUND HEALING OF CHONDROCYTE MONOLAYER	P2-4
Philip W. Brownjohn and John C. Ashton	PROTEOMIC IDENTIFICATION OF THE RAT CANNABINOID CB2 RECEPTOR USING MASS SPECTROMETRY AND IMMUNOBLOTTING	P2-5
Dina Navia-Paldanius, Niina Aaltonen, Marko Lehtonen, Ulrike Taschler, Franz P. Radner, Robert Zimmermann and Jarmo T. Laitinen	BRAIN REGIONAL DESENSITIZATION OF CANNABINOID CB1 RECEPTOR SIGNALING IN MICE WITH GLOBAL GENETIC KNOCKOUT OF MONOACYLGLYCEROL LIPASE	P2-6
Pekkala S, Wiklund P, Hulmi JJ, Marjomäki V, Alén M, Pöllänen E, Fachada V, Mero AA and Cheng S	CANNABINOID RECEPTOR 1 REGULATES PROTEIN SYNTHESIS AND TRANSLATION IN HUMAN SKELETAL MUSCLE	P2-7
Jahan P. Marcu, Steven N. Popoff and Mary E. Abood	CB1 AND CB2 ANTAGONIST SIGNALING IN OSTEOBLASTS	P2-8
Gemma L. Baillie, Roger G. Pertwee and Ruth A. Ross	SIGNALLING TRAFFICKING AT THE CANNABINOID CB1 RECEPTOR BY THE CB1 ALLOSTERIC MODULATOR, ORG 27569	P2-9
William A. Devane, David L. Stevens, David P. Finn, Ntsang M. Nebane, Zhao-Hui Song, David Peters, Duncan Crawford, J. Michael Walker, Benjamin Applegate, John M. Kennish, Michael P. Cassidy, Dana E. Selley, Anne Zimmer, Andreas Zimmer and William L. Dewey	LEELAMINE, A NOVEL DITERPENE, EXHIBITS CANNABIMIMETIC EFFECTS IN CB1 RECEPTOR KNOCKOUT MICE	P2-10
Richard S. Priestley, Stephen P.H. Alexander and David A. Kendall	EARLY AND LATE PHASE ERK RESPONSES REVEAL A NOVEL FUNCTIONALLY SELECTIVE AGONIST PROFILE AT CANNABINOID TYPE 1 RECEPTORS	P2-11
Chris S. Breivogel and Manan Vaghela	BETA-ARRESTIN1 MEDIATION OF THE EFFECTS OF CANNABINOID LIGANDS	P2-12
Alex Straiker, Laura Pardon, Lisa Walter, Nephi Stella and Suresh Viswanathan	EVIDENCE FOR A FUNCTIONAL ROLE OF CB1 CANNABINOID RECEPTORS IN THE MAMMALIAN CONE PATHWAY	P2-13
Linda Console-Bram, Eugen Brailoiu, Cristina Brailoiu and Mary E. Abood	CALCIUM MOBILIZATION AND MAPK ACTIVITY VIA GPR18	P2-14

Jagjeet Singh, Diane Lynch, Zhao-Hui Song and Patricia H. Reggio	THE IMPORTANCE OF THE CB2 HOMODIMER TO THE CB2 CATALYZED ACTIVATION OF G <sub>i</sub> PROTEIN	P2-15
Lysann Palkowitsch, Julia Benkert, Sebastian Rading, Barbara Möpps and Meliha Karsak	TCTEX1 – A PUTATIVE CB2 RECEPTOR REGULATING PROTEIN	P2-16
Natalia Murataeva, Ken Mackie and Alex Straiker	THE CB2-PREFERRING AGONIST JWH015 ALSO POTENTLY AND EFFICACIOUSLY ACTIVATES CB1 IN AUTAPTIC HIPPOCAMPAL NEURONS	P2-17
Jennifer L. Hollis and Heather B. Bradshaw	PUTATIVE CANNABINOID RECEPTOR GPR18 IS PRODUCED IN RAW 264.7 MACROPHAGE CELLS	P2-18
Kristin Hines and Heather Bradshaw	N-ARACHIDONOYL GLYCINE ACTIVATION OF p44/42 MAPK IN HUMAN ENDOMETRIAL CARCINOMA CELLS	P2-19
Somnath Mukhopadhyay, Genevieve Laroche, Vladimir Poltoratsky and David Siderovski	TUNING CANNABINOID RECEPTOR SIGNALING BY RGS12 (REGULATORS OF G-PROTEIN SIGNALING) PROTEIN	P2-20
<b>TOPIC F. DRUG ADDICTION</b>		
A. Llorente-Berzal, E. Puighermanal, A. Burokas, A. Ozaita, R. Maldonado, E.M. Marco and M.P. Viveros	SEX DEPENDENT BEHAVIORAL AND MOLECULAR EFFECTS OF THC AND MDMA IN AN ANIMAL MODEL OF ADOLESCENT DRUG CONSUMPTION	P2-21
Lile JA, Kelly TH, Stinchcomb AL, Charnigo RJ, Forester EB, Hudson DA, Neltner MJ and Hays LR	PHARMACOKINETIC AND PHARMACODYNAMIC EFFECTS OF SUPRA-THERAPEUTIC Δ <sup>9</sup> -THC DOSES IN CANNABIS USERS	P2-22
Amir Englund, Paul Morrison, Judith Nottage, Dominic Hague, Fergus Kane, Stefania Bonaccorso, James Stone, Avi Reichenberg, Rudolf Brenneisen, David Holt, Amanda Fielding, Dominic ffytche, Robin Murray and Shitij Kapur	CANNABIDIOL INHIBITS THC-ELICITED PSYCHOSIS AND MEMORY IMPAIRMENTS IN HUMANS	P2-23
Salvatore Lecca, Antonio Luchicchi, Marta De Felice and Marco Pistis	MATERNAL IMMUNE ACTIVATION DISRUPTS THE FUNCTIONALITY OF MESOLIMBIC DOPAMINE NEURONS: INVOLVEMENT OF CANNABINOIDS	P2-24



Beata Bystrowska, Karolina Wydra, Agata Suder, Irena Smaga and Małgorzata Filip	CHANGES IN CONCENTRATION OF ENDOCANNABINOIDS AND N-ACYL ETHANOLAMIDES IN BRAIN STRUCTURES OF RATS UNDERWENT COCAINE SELF-ADMINISTRATION AND ITS WITHDRAWAL	P2-25
Iain S. McGregor, Alex Wong, Kong M. Li, Jonathon C. Arnold and Wendy Swift	CANNABIS POTENCY IN NEW SOUTH WALES AUSTRALIA: AN ANALYSIS OF POLICE SEIZED STREET SAMPLES	P2-26
Thomas Gamage, Divya Ramesh, Rehab Abdullah, Micah J. Niphakis, Ben Cravatt and Aron Lichtman	DUAL FAAH/MAGL INHIBITION ATTENUATES SOMATIC SIGNS OF SPONTANEOUS MORPHINE WITHDRAWAL IN ICR MICE	P2-27
Matthew F. Lazenka, Eric J. Nestler, Dana E. Selley and Laura J. Sim-Selley	ROLE OF $\Delta$ FOSB IN CB1R DESENSITIZATION IN THE BASAL GANGLIA	P2-28
Sofia B. Gustafsson and Stig O. P. Jacobsson	EFFECTS OF CANNABINOIDS ON THE DEVELOPMENT OF CHICK EMBRYOS IN OVO	P2-29
Fabiana Piscitelli, Aron Lichtman, Laura Sim-Selley, Robert Hamm, Tiziana Bisogno, Vincenzo Di Marzo and Raphael Mechoulam	TARGETED LIPIDOMICS PROFILING OF INJURED RAT BRAIN: POSSIBLE IMPLICATIONS FOR NICOTINE DEPENDENCE	P2-30
Emmanuel S. Onaivi, Hiroki Ishiguro, Alvaro Llorente-Berzal, Maria-P Viveros and George R. Uhl	CANNABINOID RECEPTORS: GENE STRUCTURES, SNPS, CNVS, CPG ISLANDS MICRORNA REGULATION AND VARIATION IN NEUROPSYCHIATRIC DISORDERS	P2-31
Bela Szabo, Volker Auwärter, Mario Lederer, Stefan Kneisel and Maren Hermanns-Clausen	ACUTE INTOXICATIONS FOLLOWING CONSUMPTION OF HERBAL PRODUCTS CONTAINING SYNTHETIC CANNABINOIDS	P2-32
<b>TOPIC G. CANCER / IMMUNOLOGY</b>		
Torsten Lowin, Angelika Gräber, Elena Neumann and Rainer H. Straub	ANANDAMIDE ATTENUATES THE INFLAMMATORY PHENOTYPE OF RHEUMATOID ARTHRITIS SYNOVIAL FIBROBLASTS BY ACTIVATING MULTIPLE RECEPTOR PATHWAYS	P2-33
Torsten Lowin, Wentao Zhu, Katja Dettmer, Elena Neumann and Rainer H. Straub	CORTISOL-INDUCED ADHESION OF SYNOVIAL FIBROBLASTS IS MEDIATED BY THE ENDOCANNABINOID SYSTEM	P2-34

Wook Kim, Qizong Lao, Yu-Kyong Shin, Olga D. Carlson, Eun Kyung Lee, Myriam Gorospe, Rohit N. Kulkarni and Josephine M. Egan	CANNABINOIDS INDUCE PANCREATIC BETA-CELL DEATH BY DIRECTLY INHIBITING INSULIN RECEPTOR ACTIVATION	P2-35
Daniel Kerr, Brendan Harhen, David P. Finn and Michelle Roche	PHARMACOLOGICAL INHIBITION OF MONOACYLGLYCEROL LIPASE ATTENUATES LPS-INDUCED INCREASES IN CYTOKINE EXPRESSION IN THE RAT FRONTAL CORTEX AND PLASMA: DIFFERENTIAL MECHANISMS OF ACTION	P2-36
Daniel Roskowski, Douglas McHugh, Siyun Xie and Heather B. Bradshaw	N-ARACHIDONOYL GLYCINE REGULATES THE PHENOTYPIC MORPHOLOGY OF BV-2 MICROGLIA	P2-37
Evan Jameyfield, Siham Raboune, Douglas McHugh and Heather B. Bradshaw	NOVEL ENDOGENOUS N-ACYL AMIDES INDUCE CALCIUM MOBILIZATION IN BV-2 MICROGLIA	P2-38
Douglas McHugh, Jeremy Page and Heather B. Bradshaw	N-ARACHIDONOYL GLYCINE AND $\Delta^9$ -THC REGULATE THE CYTOKINE PRODUCTION OF BV-2 MICROGLIA	P2-39
Seok-Woo Park and Myung-Whun Sung	CANNABINOID RECEPTOR-INDEPENDENT ANTI-PROLIFERATIVE EFFECT OF DOCOSAHEXAENOYL ETHANOLAMIDE IN HEAD AND NECK SQUAMOUS CELL CARCINOMA CELLS	P2-40
Benjamin Gennequin, David-Marian Otte, Katrin Zimmermann, Anne Zimmer and Andreas Zimmer	FUNCTIONAL ANALYSIS OF THE HUMAN CB2 RECEPTOR VARIANTS	P2-41
Luciano De Petrocellis, Alessia Ligresti, Aniello Schiano Moriello, Roberta Verde, Pierangelo Orlando, Colin G. Stott and Vincenzo Di Marzo	CANNABINOIDS IN PROSTATE CANCER: AN UPDATE	P2-42
Svenja S. Ternes, Judith Alferink and Andreas Zimmer	REGULATION OF INFLAMMATORY PROCESSES BY THE ENDOCANNABINOID SYSTEM	P2-43
Christeene Haj, Percy F. Sumariwalla, Natalya Kogan, Zhanna Yektin, Marc Feldmann, Raphael Mechoulam and Ruth Gallily	NOVEL CANNABIDIOL DERIVATIVES AND THEIR USE AS ANTI-INFLAMMATORY AGENTS	P2-44
Toguri, J.T., Szczesniak, A.M., Zhou, J., Lehmann, C. and Kelly, M.E.M	CANNABINOID MODULATION OF LEUKOCYTE- ENDOTHELIAL INTERACTIONS IN AN ENDOTOXIN- INDUCED UVEITIS MODEL	P2-45

Anna-Maria Szczesniak and Melanie E.M. Kelly	THE ROLE OF CANNABINOID RECEPTOR 2 IN THE EXPERIMENTAL AUTOIMMUNE UVEORETINITIS	P2-46
Neta Rimmerman, Ana Juknat, Ewa Kozela, Ziv Porat, Danya Ben-Hail, Varda Shoshan- Barmatz and Zvi Vogel	CANNABIDIOL AFFECTS MITOCHONDRIAL TARGETS IN BV-2 MICROGLIAL CELLS	P2-47
Jocelijn Meijerink, Mieke Poland, Michiel Balvers, Zheng Wang, Jvalini Dwarkasing and Renger F. Witkamp	FISHING FOR CANNABINOIDS FROM FISH; IMMUNE- MODULATORY MECHANISMS OF AMIDES DERIVED FROM N-3 FATTY ACIDS	P2-48
Tara Macpherson, John Westwick and Karen Wright	CANNABIDIOL AFFECTS CELLULAR BIOENERGETICS IN COLON CANCER	P2-49
Amy G. Eubanks, Cameron A. Tull, Amber E. Prescott, John R. Sims, Emily R. Coffman, Whitley M. Hoppe, Colmon W. Massey, Nolan J. West, Vikki K. Bennett, Cara L. McKinney, Jessica R. Winston, Larry J. Suva, Robert J. Griffin and Lori L. Hensley	ANTI-TUMOR EFFECTS OF AJULEMIC ACID ON THE EWING'S SARCOMA FAMILY OF TUMORS	P2-50
A.M. Wasik, S. Almestrand, F. Zong, P. Andersson, E. Kimby, B. Christensson and B. Sander	MAPPING OF THE ENDOCANNABINOID SYSTEM IN MANTLE CELL LYMPHOMA	P2-51
Mohd W. Nasser, Zahida Qamri, Konstantin Shilo and Ramesh K. Ganju	CANNABINOID RECEPTOR CB2 CROSSTALK WITH CHEMOKINE RECEPTOR CXCR4 TO MODULATE BREAST CANCER GROWTH AND METASTASIS	P2-52
Somnath Mukhopadhyay, Shalini Jha and Victoria Jones	CB2 RECEPTOR-MEDIATED REGULATION OF I2PP2A (INHIBITOR 2 OF PROTEIN PHOSPHATASE 2A): A NEW TARGET FOR PROSTATE CANCER TREATMENT	P2-53
Benjamin S. Harvey and Scott D. Smid	EFFECTS OF PRO-INFLAMMATORY CYTOKINES AND CANNABINOIDS ON INTESTINAL EPITHELIAL PERMEABILITY	P2-54
June Penman, Alana J. Burns and Andrew J. Irving	L- $\alpha$ -LYSOPHOSPHATIDYLINOSITOL AND AM251 PROMOTE CYTOSKELETAL REORGANISATION IN CANCER CELL LINES THAT EXPRESS GPR55	P2-55

# POSTER SESSION 3: TOPICS H - J

## DAY 3, WEDNESDAY, JULY 25<sup>TH</sup>: 10:45 – 12:45

### TOPIC H. LIGAND DEVELOPMENT

Daniel J. Hermanson, Nolan D. Hartley, Sachin Patel and Lawrence J. Marnett	DEVELOPMENT OF LM-4131, A SUBSTRATE-SELECTIVE INHIBITOR OF CYCLOOXYGENASE-2	P3-1
Pritesh Kumar, Akhilesh Kumar and Zhao-Hui Song	STRUCTURE-ACTIVITY RELATIONSHIPS OF LIGANDS FOR GPR119 – A GPCR THAT IS RELATED TO CANNABINOID RECEPTORS	P3-2
Jayendra Z. Patel, Teija Parkkari and Tapio Nevalainen	3,4-DISUBSTITUTED THIADIAZOLES AS FAAH AND/OR MGL INHIBITORS	P3-3
Andrea Chicca, Janine Marazzi, Simon Nicolussi and Jürg Gertsch	EVIDENCE FOR A BIDIRECTIONAL ENDOCANNABINOID TRANSPORT ACROSS CELL MEMBRANES AND IDENTIFICATION OF SELECTIVE INHIBITORS	P3-4
Roger Slavik, Daniel Bieri, Konstantin Drandarov, Adrienne Müller, Stefanie Krämer, Roger Schibli, Simon M. Ametamey and Linjing Mu	SYNTHESIS AND EVALUATION OF NOVEL CANNABINOID TYPE 2 RECEPTOR TRACERS FOR PET IMAGING	P3-5
Sari Yrjölä, Tuomo Kalliokoski, Teija Parkkari, Tuomo Laitinen, Antti Poso and Tapio Nevalainen	2,4,6-TRISUBSTITUTED 1,3,5-TRIAZINES AS SELECTIVE CB2 AGONISTS	P3-6
Sara Del Carlo, Giuseppe Saccomanni, Clementina Manera, Giancarlo Pascali, Francesca Castelli, Alessia Ligresti, Vincenzo Di Marzo, Marco Macchia and Piero A. Salvadori	[18F]-LABELED HETEROCYCLIC DERIVATIVES FOR PET IMAGING OF CANNABINOID CB2 RECEPTOR	P3-7
Barbara Bosier, Giulio G. Muccioli, Eric Stern and Didier M. Lambert	4-OXO-1,4-DIHYDROQUINOLINE-3-CARBOXAMIDE DERIVATIVES AS FUNCTIONAL SELECTIVE LIGANDS AT THE CB2 CANNABINOID RECEPTOR	P3-8
Reem Smoum, Saja Baraghithy, Aviva Breuer, Malka Attar- Namdar, Raphael Mechoulam and Itai Bab	NOVEL CB2 AGONIST HU-433 MODULATES SKELETAL REMODELING AND BONE MASS	P3-9

Cristina Fernández-Fernández, Laura Hernández-Folgado, Nadine Jagerovic, María Gómez- Cañas, María Gómez-Ruiz, Javier Fernández-Ruiz and Pilar Goya	SYNTHESIS AND EVALUATION OF NOVEL CB2 CANNABINOID LIGANDS	P3-10
Jürgen Fingerle, Uwe Grether, Atsushi Kimbara, Matthias Nettekoven, Mark Rogers-Evans, Stephan Röver, Tanja Schulz- Gasch, Christoph Ullmer and Franz Schuler	INITIAL HTS HIT OPTIMIZATION: NOVEL, HIGHLY POTENT AND SELECTIVE CB2 AGONISTS	P3-11
Valentina Lucchesi, Haleli Sharir, Giuseppe Saccomanni, Alessia Ligresti, Vincenzo Di Marzo, Marco Macchia, Mary E. Abood and Clementina Manera	INVESTIGATION ON 1,8-NAPHTHYRIDIN-2(1H)-ON-3- CARBOXAMIDES A CLASS OF POTENT CB2 SELECTIVE CANNABINOID RECEPTOR LIGANDS: SYNTHESIS, STRUCTURE-ACTIVITY RELATIONSHIPS AND FUNCTIONAL ACTIVITY	P3-12
Herbert H. Seltzman, Rangan Maitra, Patricia Reggio, Daniel Wesley, Joseph Tam and George Kunos	<i>IN VIVO</i> METABOLIC EFFECTS OF PIMSR, A CANNABINOID CB1 RECEPTOR NEUTRAL ANTAGONIST	P3-13
Rangan Maitra, Alan Fulp, Katherine Bortoff, Herbert Seltzman, Yanan Zhang, Timothy Fennell, James Mathews and Rodney Snyder	TOWARDS RATIONAL DEVELOPMENT OF PERIPHERALLY SELECTIVE ANTAGONISTS OF CANNABINOID RECEPTOR 1	P3-14
Lirong Wang, Junmei Wang, Zhaojun Xie, Chao Ma, Kyaw Myint and Xiang-Qun Xie	CLOUD COMPUTING WEBSERVER FOR CANNABINOID RESEARCH	P3-15
James D Wakefield, Kristie A Sykes, Nisha Perez, Stacy D Arnett, Vasu Sethuraman, Christopher M Graul, James P Pearson, G Todd Milne, Albert Profy, Robert W Busby and Kamlesh P Vyas	PHARMACOKINETICS AND PHARMACODYNAMICS OF A POTENT, SELECTIVE AND ORALLY BIOAVAILABLE FAAH INHIBITOR, MM-433593 IN SPRAGUE-DAWLEY RATS, CYNOMOLGUS MONKEYS AND HUMAN	P3-16
Ming-Shiu Hung, Kak-Shan Shia, Teng-Kang Yeh, Jen-Shin Song, Chun-Ping Chang, Yinchiu Lin, Pei-Chuan Chen, Wen-Chy Hsiao and Yu-Sheng Chao	A NOVEL PERIPHERAL CB1 ANTAGONIST REDUCES FOOD INTAKE AND EXHIBITS EFFICACY IN IMPROVING ADIPOSITY AND INSULIN RESISTANCE	P3-17
Paolo Lazari, Gabriele Murineddu, Ilaria Manca, Giovanni Loriga and Gérard Aimè Pinna	MYRTANIL SUBSTITUENT IN 3 POSITION OF PIRAZOLE RING DETERMINES CB1 AGONISM OF NOVEL 4,5- DIHYDROBENZO-OXA-CYCLOHEPTAPYRAZOLE CANNABINOIDS	P3-18
Mario van der Stelt	DISCOVERY AND OPTIMIZATION OF 1-(4-(PYRIDIN-2- YL)BENZYL) IMIDAZOLIDINE-2,4-DIONE DERIVATIVES AS A NOVEL CLASS OF SELECTIVE CANNABINOID CB2 RECEPTOR AGONISTS	P3-19

## TOPIC I. ENDOCANNABINOIDS & ENZYMES

<p>Tatsuya Tai, Kazuhito Tsuboi, Toru Uyama, Kim Masuda, Benjamin F. Cravatt, Hitoshi Houchi and Natsuo Ueda</p>	<p style="text-align: center;">STIMULATORY EFFECTS OF PHOSPHOLIPIDS AND DIHYDROLIPOIC ACID ON N-ACYLETHANOLAMINE-HYDROLYZING ACID AMIDASE (NAAA)</p>	<p style="text-align: center;">P3-20</p>
<p>Jayendra Z. Patel, Teija Parkkari, Susanna M. Saario and Tapio Nevalainen</p>	<p style="text-align: center;">NOVEL OXADIAZOLONE ANALOGUES AS FAAH AND/OR MGL INHIBITORS</p>	<p style="text-align: center;">P3-21</p>
<p>Mariateresa Cipriano, Jonas Eriksson, Emmelie Björklund, Alka Marwaha, Anders Lindgren, Per-Anders Enquist, Mikael Elofsson and Christopher J. Fowler</p>	<p style="text-align: center;">NOVEL INHIBITORS OF MONOACYLGLYCEROL LIPASE</p>	<p style="text-align: center;">P3-22</p>
<p>Mauro Maccarrone, Almerinda Di Venere, Enrico Dainese, Filomena Fezza, Beatrice Clotilde Angelucci, Nicola Rosato, Benjamin F. Cravatt, Alessandro Finazzi-Agrò and Giampiero Mei</p>	<p style="text-align: center;">HIDDEN DIFFERENCES BETWEEN RAT AND HUMAN FATTY ACID AMIDE HYDROLASES</p>	<p style="text-align: center;">P3-23</p>
<p>Redmond W.J., Gu L., McIntyre P. and Connor M</p>	<p style="text-align: center;">DETERMINANTS OF FATTY ACID ACTIVATION OF THE PRONOCICEPTIVE ION CHANNEL TRPA1</p>	<p style="text-align: center;">P3-24</p>
<p>Ulrike Thieme, Matthias Feueracker, Daniela Hauer, Alex Salam, Detlef Thieme, Alexander Chouker and Gustav Schelling</p>	<p style="text-align: center;">CHANGES IN CIRCULATING ENDOCANNABINOIDS AND N-ACYLETHANOLAMINES DURING OVERWINTERING AT CONCORIA RESEARCH STATION IN CONTINENTAL ANTARCTICA</p>	<p style="text-align: center;">P3-25</p>
<p>Cyrill Hornuss, Daniela Hauer, Patrizia Campolongo, Isabel Briegel, Christian C. Apfel and Gustav Schelling</p>	<p style="text-align: center;">GENERAL ANESTHESIA WITH PROPOFOL INFLUENCES CIRCULATING ENDOCANNABINOIDS AND N-ACYLETHANOLAMINES: A STUDY IN VOLUNTEERS</p>	<p style="text-align: center;">P3-26</p>
<p>Kazuhito Tsuboi, Yumiko Yamano, Yuki Hozaki, Kiyohiro Takahashi, Xing-Hua Jin, Akimori Wada and Natsuo Ueda</p>	<p style="text-align: center;">LIPOPHILIC AMINES AS INHIBITORS OF N-ACYLETHANOLAMINE-HYDROLYZING ACID AMIDASE (NAAA)</p>	<p style="text-align: center;">P3-27</p>
<p>Kazuhito Tsuboi, Yasuo Okamoto, Natsuki Ikematsu, Manami Inoue, Yoshibumi Shimizu, Toru Uyama, Dale G. Deutsch, Akira Tokumura, and Natsuo Ueda</p>	<p style="text-align: center;">BIOSYNTHETIC PATHWAYS OF N-ACYLETHANOLAMINES FROM N-ACYLATED PLASMALOGEN PHOSPHOLIPID</p>	<p style="text-align: center;">P3-28</p>

Michiel G.J. Balvers, Renger F. Witkamp and Kitty C.M. Verhoeckx	FREE AND ESTERIFIED N-ACYL ETHANOLAMINES IN PLASMA AND BLOOD CELLS: EVIDENCE FOR PREVIOUSLY IGNORED POOLS OF ESTERIFIED NAEs	P3-29
A. Martella, C. Silvestri, O. Carnevali and V. Di Marzo	CHARACTERIZATION OF THE ENDOCANNABINOID SYSTEM DURING ZEBRAFISH (DANIO RERIO) EMBRYOGENESIS AND POSSIBLE DRUG SCREENING APPLICATIONS	P3-30
Niina Aaltonen, Casandra Riera Ribas, Marko Lehtonen, Juha Savinainen and Jarmo T. Laitinen	BRAIN REGIONAL CANNABINOID CB1 RECEPTOR SIGNALLING AND ALTERNATIVE ENZYMATIC PATHWAYS FOR 2-ARACHIDONOYLGLYCEROL GENERATION IN BRAIN SECTIONS OF DAGL-ALPHA AND DAGL-BETA DEFICIENT MICE	P3-31
Rebecca Henry, Daniel Kerr, David P. Finn and Michelle Roche	TLR-3 MEDIATED CYTOKINE EXPRESSION IN THE RAT HIPPOCAMPUS IS ALTERED FOLLOWING PHARMACOLOGICAL INHIBITION OF FAAH	P3-32
Collin B. Merrill, Michael McNeil, Ryan C. Williamson and Jeffrey G. Edwards	IDENTIFICATION OF MRNA FOR ENDOCANNABINOID BIOSYNTHETIC ENZYMES WITHIN HIPPOCAMPAL PYRAMIDAL CELLS AND CA1 STRATUM RADIATUM INTERNEURON SUBTYPES USING QUANTITATIVE REAL-TIME PCR	P3-33
Carina E. P. Kozmus, Vojko Berce and Uros Potocnik	CNR2 AND ABHD4 GENE EXPRESSION IS UP-REGULATED IN ASTHMA PATIENTS	P3-34
Alex Straiker, Sherry Shu-jung Hu, Jacqueline Blankman, Benjamin F. Cravatt and Ken Mackie	DISTRIBUTION OF ABHD12 PROTEIN IN MURINE BRAIN	P3-35
Elizabeth Sabens Liedhegner, Kara Stuhr and Cecilia Hillard	REGULATION OF ENDOCANNABINOID LEVELS BY STEROL CARRIER PROTEIN 2	P3-36
<b>TOPIC J. PAIN</b>		
Miriam Schneider, Peggy Schneider, Christian Schmahl, Rainer Spanagel and Martin Bohus	SOCIAL PAIN AND THE ENDOCANNABINOID SYSTEM: ADOLESCENT PEER-REJECTION PERSISTENTLY ALTERS PAIN PERCEPTION AND CB1 RECEPTOR EXPRESSION IN FEMALE RATS	P3-37
Jordyn M. Stuart, Julie Wiesler, Amanda Ellis, Linda Watkins, and Heather B. Bradshaw	ENDOGENOUS CANNABINOIDS AND RELATED N-ACYL AMIDES ARE UP AND DOWN-REGULATED IN A SPINAL CORD INJURY MODEL OF NEUROPATHIC PAIN	P3-38
Brandon P Rhodes, Jordyn M. Stuart, Siham Raboune and Heather B. Bradshaw	LEVELS OF ENDOCANNABINOIDS AND RELATED N-ACYL AMIDES CHANGE IN THE CEREBELLUM, MIDBRAIN, BRAINSTEM AND THALAMUS IN A MODEL OF ACUTE PERIPHERAL INFLAMMATION	P3-39

Sara M. Takacs, Jordyn M. Stuart, Siham Raboune and Heather B. Bradshaw	PERIPHERAL INFLAMMATION DRIVES CHANGES IN N-ACYL AMIDES IN THE STRIATUM AND HIPPOCAMPUS	P3-40
Neil J. Poloso, Jenny W. Wang, Elaine Tang and David F. Woodward	CHARACTERIZATION OF A MODEL OF OCULAR PAIN/DISCOMFORT WITH RESPECT TO CYCLO-OXYGENASE AND PROSTANOID RECEPTOR INVOLVEMENT	P3-41
V.S. Seybold, L.G. Coicou, D. Piomelli and I.A. Khasabova	ACTIVATION OF PPAR $\alpha$ IN DORSAL ROOT GANGLION NEURONS MODULATES NOCICEPTION AND REDUCES TUMOR PAIN IN MICE	P3-42
Natalia Malek, Michal Korostynski, Barbara Przewlocka and Katarzyna Starowicz	NERVE INJURY-INDUCED MOLECULAR CHANGES: ROLE OF THE ENDOCANNABINOID AND ENDOVANILLOID SYSTEMS	P3-43
Sara Jane Ward, Sean D. McAllister, Harshini Neelakantan and Ellen A. Walker	PACLITAXEL-INDUCED NEUROTOXICITY: EFFICACY AND SAFETY OF CANNABIDIOL AS A NOVEL TREATMENT STRATEGY	P3-44
Liting Deng, Josée Guindon, Ken Mackie, Fletcher White, Ganesh Thakur, Alexandros Makriyannis and Andrea G. Hohmann	SELECTIVE ACTIVATION OF CANNABINOID CB2 RECEPTORS SUPPRESSES CHEMOTHERAPY-INDUCED NEUROPATHY INDEPENDENT OF CB1 OR CXCR4 RECEPTOR SIGNALING	P3-45
Weredeslam M. Olango, Michelle Roche and David P. Finn	PHARMACOLOGICAL MODULATION OF THE ENDOCANNABINOID SYSTEM IN TWO RAT STRAINS DIFFERING IN NOCICEPTIVE RESPONSIVITY: BEHAVIOURAL EFFECTS AND RVM ZIF268 EXPRESSION	P3-46
Bright Okine, Weredeslam M. Olango, Brendan Harhen, Michelle Roche and David P. Finn	CHARACTERISATION OF THE ENDOCANNABINOID SYSTEM WITHIN THE DESCENDING PAIN PATHWAY OF TWO RAT STRAINS DIFFERING IN NOCICEPTIVE RESPONSIVITY	P3-47
Padmanabha V. Kattamuri, Rebecca Salmonsén, Catherine McQuain, Sumner Burstein and Guigen Li	ASYMMETRIC SYNTHESIS OF NOVEL N-(1-PHENYL-2,3-DIHYDROXYPROPYL) ARACHIDONYLAMIDES AND EVALUATION OF THEIR ANTI-INFLAMMATORY ACTIVITY	P3-48
Ermelinda Lomazzo, Raissa Lerner, Claudia Schwitter and Beat Lutz	THE ENDOCANNABINOID SYSTEM AND STRESS-MEDIATED ENHANCEMENT OF PAIN SUSCEPTIBILITY IN MICE	P3-49
Enza Palazzo, Vito de Novellis, Livio Luongo, Francesca Guida, and Sabatino Maione	INTERACTION BETWEEN CANNABINOID AND METABOTROPIC GLUTAMATE RECEPTORS IN THE PERIAQUEDUCTAL GRAY-ROSTRAL VENTROMEDIAL MEDULLA PATHWAY IN NEUROPATHIC RAT	P3-50
Sudeshna Ghosh, Laura E. Wise, Rehab A. Abdulla, Micah J. Niphakis, Benjamin F. Cravatt and Aron H. Lichtman	COMBINED INHIBITION OF MAGL AND FAAH SUPPRESSES EDEMA AND PRODUCES AUGMENTED ANTI-ALLODYNIC EFFECTS IN THE CARRAGEENAN MOUSE MODEL	P3-51